

US 5,538,762 A

(11) Patent Number: 5,538,762  
(45) Date of Patent: Jul. 23, 1996

4,961,996 10/1990 Carre et al. 428/421

#### FOREIGN PATENT DOCUMENTS

363924 11/1989 European Pat. Off. .  
367438 5/1990 European Pat. Off. .  
386784 9/1990 European Pat. Off. .

#### OTHER PUBLICATIONS

Abstract of JP 61-016910, Jan. 1986.  
World Patents Index Latest, Derwent Publications Ltd.,  
London, GB: AN 86-065417 & JP-A-61 016 910 (Hitachi  
Cable KK), Jan. 24, 1986 (abstract).

Primary Examiner—Shrive Beck  
Assistant Examiner—Erma Cameron  
Attorney, Agent, or Firm—Fish & Richardson

#### [57] ABSTRACT

A method of contacting a substrate having a surface containing hydroxyl groups with a non-aqueous solution containing a material having a chlorosilyl group; washing if desired; coating the substrate with a non-aqueous solvent containing a compound having a fluorocarbon group and a chlorosilane group or a solvent containing a compound containing a fluorocarbon group and an alkoxysilane; and baking the substrate if necessary in order to form a fluorocarbon-based polymer coating film chemically bonded to the substrate surface. The hydroxyl groups on the substrate surface and chlorosilyl groups are reacted to form a thin film having a large number of silanol groups ( $\text{—SiOH}$ ) capable of connecting the polymer coating film to the substrate to form a heat-, weather-, and wear-resistant film on various surfaces.

11 Claims, 6 Drawing Sheets